**Commonwealth of Kentucky**
**Division for Air Quality**

# *PERMIT STATEMENT OF BASIS*

FINAL
Conditional Major, Construction / Operating
Permit: F-06-009 R1
Marathon Petroleum Company
Lexington, KY.
August 8, 2008
IL-Won Shin, Reviewer

SOURCE ID: 21-067-00031
AGENCY INTEREST: 1076
ACTIVITY: APE20080001

**MINOR PERMIT REVISION - F-06-009 R1:**

Marathon is planning on installing a new 100-gallon distillate (Kerosene/Jet fuel) additive tank which includes some piping and 2 new pumps. With the use of the new tank and injection system, the distillate additive will be blended with the kerosene/jet fuel in the new 100 gallon tank and then pumped to the load rack where it will be injected/blended with product as it is loaded into tanker trucks.

The projected maximum annual emissions from the new tank, pumps, and piping are summarized in Table 1 below. Emissions were calculated using U.S. EPA AP-42 emission factors, EPA's Tanks 4 software, and API fugitive emission factors. Maximum distillate and additive throughputs were estimated using projected maximum market demands.

**Table 1, Emissions Increase**

| Permit Emission Point | Description | VOC Emissions (tons/yr) | Total HAPs Emissions (tons/yr) |
|---|---|---|---|
| Insignificant Activity | New Additive Tank AA-1-2 & Associated Pumps and Piping | 0.000025 (Tank)<br>0.03 (Fugitives as Gasoline/Worst Case Scenario) | 0.003 (Combined) |
| Total | | 0.030025 | 0.003 |

**SOURCE DESCRIPTION - F-06-009:**

Marathon owns and operates a terminal in Lexington, Kentucky. The terminal receives product by pipeline, stores the product in tanks, and then loads the product to tank trucks for distribution. The terminal is currently permitted under Kentucky air operating permit F-06-009, which was issued on September 8, 2006. The permitted points are tank truck loading racks, storage tanks, and terminal fugitive equipment. Emissions from this terminal are limited by the permittee to attain conditional major status.

The Lexington Terminal is a bulk storage facility that receives gasoline, fuel oil, and kerosene by pipeline and stores the products in above ground storage tanks (note that jet fuel is considered a subset of kerosene). Occasionally, a tank truck loaded with gasoline or other product may be returned and off-loaded into a storage tank. However, this is not a routine operation. Ethanol, additives, and diesel dye are received by tanker truck and are injected into the product at the loading racks. All products are shipped out by tank trucks, which are loaded at the loading racks. The facility also has small oil-water separators, a crock used to hold petroleum contact water before it is sent off-site for reclamation, and other miscellaneous equipment.

A vapor recovery unit (VRU) is the primary control for truck-loading emissions. Vapors vented during loading are adsorbed onto an activated carbon bed. When the bed becomes saturated, it is regenerated. Regeneration is achieved by absorbing the recovered gasoline vapors off of the beds with liquid gasoline. The VRU has two beds. One carbon bed removes gasoline vapors while the other bed is being regenerated. After a period of time, the beds will switch.

On occasion the VRU may need to be down for maintenance. Because emissions control is required by 40 CFR 60 Subpart XX, Marathon has the ability to use backup control devices in order to eliminate long term interruptions of terminal loading operations. The Lexington Terminal has two types of backup emission controls. The first is using the VRU at the nearby Chevron terminal. Chevron's VRU is also used to comply with Subpart XX, so Marathon and Chevron have an agreement to be able to use each other's VRU if needed. The second backup emission control is a portable vapor destruction units (VDU) owned by Marathon. Marathon owns several of these portable oxidizers, which are regularly tested and maintained by the company for use as backup emission controls at their terminals. The September 9, 2005 letter from Marathon to the Division included documentation that these units will also meet the Subpart XX control requirements.

Marathon submitted construction application for installation of Tank 835 on May 1, 2006. The tank (Tank 835) is a 462,000 gallon capacity internal floating roof tank. While primarily intended for ethanol storage, the tank is capable of storing gasoline, diesel, distillate, and kerosene. The addition of this tank does not affect the terminal's gasoline throughput capacity, which is a function of market demand and pipeline capacity. Marathon also requested that this revision be considered additional information for the Conditional Major renewal application, and that the tank was included in the renewed Conditional Major permit, F-06-009.

**COMMENTS:**

Type of control and efficiency:

- A vapor recovery unit (VRU) is the primary control for truck-loading emissions with 99.83% efficiency.

- The second backup emission control is portable vapor destruction units (VDU).

Emission factors and their source:

Marathon has calculated maximum emissions from the terminal using estimated future maximum throughputs. Maximum product throughputs were estimated using predicted future maximum market demands, and then increased by a substantial safety factor to give conservative estimates. Tank emissions calculations are performed by the TANK 4.0 software program. Loading rack totals are based on VRU stack test results for gasoline and AP-42 for fuel oil.

Applicable Regulations:

40 CFR 60 Subpart XX, *Standards of Performance for Bulk Gasoline Terminals*, applies to the gasoline loading operations. The exact date that Bay 1 commenced construction has not been determined. It could have been before the NSPS XX applicability date of December 17, 1980, but Marathon is not sure. In any event, there have likely been upgrades since December 1980 that decreased loading time. Therefore, Marathon has conservatively considered this rack to be subject to NSPS XX. Also note that since the affected facility is defined as the total of all the loading racks, construction or modification of one bay would have brought all the bays under Subpart XX.

40 CFR 60 Subpart Kb, *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984*. Per Section 60.110b(a), the rule applies to storage vessels with capacities greater than 75 $m^3$ (19,800 gal) that are used to store volatile organic liquids, and that commenced after July 23, 1984. Also, Section 60.110b(b) of the rule exempts storage vessels larger than 75 $m^3$, but storing materials with maximum true vapor pressures (tvp) less than certain values. There are only two tanks at the terminal subject to the rule, **Tank 832 and Tank 835**. These tanks use an internal floating roof to achieve compliance.

Non-Applicable Regulations:

40 CFR 63 Subpart R, *National Emission Standards for Gasoline Distribution Facilities*. Per Section 63.420(a)(2) of the rule, the regulation applies only to facilities that are part of a major source of HAP emissions. The terminal is a minor HAP source, since maximum HAP emissions are significantly less than 22.5 ton/yr total HAP and 9 ton/yr individual HAP. Therefore, the rule does not apply.

401 KAR 59:101, *New bulk gasoline plants*, and 401 KAR 61:056, *Existing bulk gasoline plants*. These rules apply to facilities that use tank trucks, trailers, or other mobile non-marine vessels for both incoming and outgoing gasoline transfers. Lexington terminal receives gasoline by pipeline only. Therefore, these rules do not apply.

401 KAR 61:055, *Existing loading facilities at bulk gasoline terminals*. This rule applies to existing bulk gasoline loading facilities located in either an urban ozone non-attainment area, or located at a major source of VOC emissions. Lexington is attainment for VOC, and the terminal is not a major source of VOC emissions. Therefore, the rule does not apply.

401 KAR 59:050, *New storage vessels for petroleum liquids*. Under Section 1(1) of the rule, a tank could be subject to the rule if it is located in either an urban ozone non-attainment area, or located at a major source of VOC emissions. Lexington is attainment for VOC, and the terminal is not a major source of VOC emissions. Under Section 1(2) of the rule, tanks at non-major sources located in attainment areas could be subject to the rule if their storage capacity is greater than 40,000 gallons and they commenced between 1972 and 1984. The terminal has no tanks that fall within these ranges. Therefore, the rule does not apply.

401 KAR 61:050, *Existing storage vessels for petroleum liquids*. Under Section 2(1) of the rule, a tank is only subject to the rule if it is located in an ozone non-attainment area for any non-attainment classification except marginal. Lexington is classified as a VOC attainment area. Therefore, the rule does not apply.

401 KAR 59:095, *New oil-effluent water separators*, and 401 KAR 61:045, *Existing oil-effluent water separators*. Under Section 1(1) and (2) of these rules, oil-water separators could be subject to the rule if they are located in either an urban ozone non-attainment area, or located at a major source of VOC emissions. Lexington is attainment for VOC, and the terminal is not a major source of VOC emissions. Therefore, these rules do not apply.

**EMISSION AND OPERATING CAPS DESCRIPTION:**

In order to ensure that the terminal remains exempt from the regulations to major sources of criteria and hazardous air pollutant (HAP) emissions, including the Gasoline Distribution MACT (40 CFR 63 Subpart R), Marathon has a Conditional Major permit. Terminal emissions are limited to less than 90 ton/yr volatile organic compounds (VOC), 22.5 ton/yr total HAP, and 9 ton/yr individual HAP. Monthly and rolling 12-month total emissions will be calculated. Emission calculations and supporting documentation will be retained at the terminal.

**PERIODIC MONITORING:**

See the permit for Specific Monitoring Requirements.

**OPERATIONAL FLEXIBILITY:**

The source is not restricted as to hours of operation or quantity of product produced while remaining within the caps above.

**CREDIBLE EVIDENCE:**

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.